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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/822,575	03/30/2001	Naoki Nagasako	09792909-4797	7195

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EXAMINER

RUDE, TIMOTHY L

ART UNIT PAPER NUMBER

2871

DATE MAILED: 12/26/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/822,575

Applicant(s)

NAGASAKO, NAOKI

Examiner

Timothy L Rude

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 November 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 November 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

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DETAILED ACTION

Drawings

1. The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on 04 November 2002 have been approved. A proper drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The correction to the drawings will not be held in abeyance.

Claims

2. Claims 1 and 4 are amended, necessitating new grounds of rejection

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

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3. Claims 1 and 4 are rejected under 35 U.S.C. 102(e) as being anticipated by Lagerwall et al (Lagerwall) USPAT 6,184,967.

As to claim 1, Lagerwall discloses in Figures 5 and 3A a liquid crystal display apparatus comprising: a liquid crystal panel having a pair of substrates, 1 and 2, facing each other; and liquid crystal material (col. 9, lines 9-12) sealed between said pair of substrates, said pair of substrates being sealed at a first seal portion, 4, which is located at peripheral portion of said substrates and also being sealed at a linear-shaped spacer, 12, (Applicant's second seal portion) located outside of an effective picture element area separated from the peripheral portion and further wherein a supporting height of the first seal portion and the second seal portion is substantially the same, and the seal portions are adhered to the opposite substrate with a binder or any other type of joint (col. 11, lines 23-25 and col. 12, lines 22-25).

FIG.5

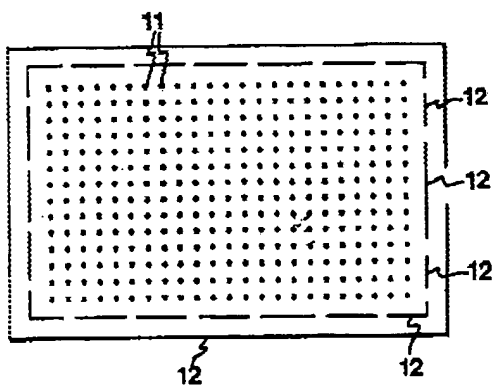
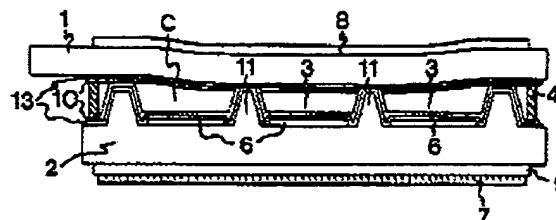


FIG. 3A



As to claim 4 the manufacturing method of a liquid crystal display apparatus having a liquid crystal display panel, comprising the steps of: superimposing a pair of

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facing substrates to form said liquid crystal display panel; and injecting liquid crystal display material between said pair of facing substrates, wherein a first portion of seal material is coated on periphery of said pair substrates, and a second portion of seal material is coated in at portions located outside of an effective picture element area of said liquid crystal display panel and further wherein a supporting height of the first and second portions of seal material is substantially the same would have been obvious given the structure of rejected claim 1.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2, 3, 5, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art (APA) in view of Lagerwall.

As to claims 2 and 3, APA discloses in Figures 2-5 an LCD apparatus wherein said liquid crystal panel is a micro-lens type liquid crystal display panel having an injection gate, 9, for liquid crystal material, a TFT substrate, 2, a micro-lens, 3, equipped facing substrate, 4, and on-chip spacers, 6, there-between.

APA does not explicitly disclose the apparatus as cited in Claim 1.

Lagerwall teaches the apparatus as cited in Claim 1, per 102e rejection above.

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Lagerwall teaches dot-shaped spacers, 11, (Applicant's said second seal portion includes said dot-shaped seal portions) at neighbor of corners of said effective picture element area (four corners in figure 5) and further includes linear-shaped spacers, 12, (Applicant's linear-shaped second seal portions/part(s)) located and extending along an edge of the effective picture element area on all four sides (Applicant's opposite to said injection gate for liquid crystal material).

Lagerwall teaches the motivations for adding linear-shaped spacers, 12, (Applicant's second seal portions) located outside of an effective picture element area and adhered to the opposite substrate with a binder or any other type of joint (col. 11, lines 23-25 and col. 12, lines 22-25), including improved flow during LC fill, avoiding LC alignment defects, and preventing void formation in the active part of the display at low temperatures (col. 10, lines 30-40), and to produce a rigid display (col. 11, lines 18-25).

Lagerwall is evidence that ordinary workers in the art of liquid crystals would find the reason, suggestion, or motivation to add dot-shaped and linear-shaped spacer/seal portions to prevent void formation in the active part of the display at low temperatures.

Therefore, it would have been obvious to one having ordinary skill in the art of liquid crystals at the time the invention was made to modify the LCD of APA with the seals of Lagerwall.

As to claim 5, the manufacturing method of a liquid crystal display apparatus as cited in Claim 4, wherein said pair substrates are a TFT substrate and a micro-lens equipped facing substrate, and said pair of substrates are superposed and sealed after

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forming on-chip spacers there-between would have been obvious given the structure of rejected claim 2 above.

As to claim 6, the manufacturing method of a liquid crystal display apparatus as cited in Claim 4 or Claim 5, wherein said second seal material is not only coated in dot-shaped form at neighbor of corners of said effective picture element area and an injection gate for liquid crystal material but also coated in linear-shaped form and extended along an edge of the effective picture element area at a portion located opposite to said injection gate for liquid crystal material would have been obvious given the structure of rejected claims 2 and 3 above.

Response to Arguments

5. Applicant's arguments filed on 04 November 2002 have been fully considered but they are not persuasive.

Applicant's ONLY arguments are as follows:

Lagerwall teaches away from first and second seal portions having substantially the same height.

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Examiner's responses to Applicant's ONLY arguments are as follows:

It is respectfully pointed out that Lagerwall claims first and second seal portions broadly in claims 13, 18, and 19 (col. 12, lines 31-38 and lines 56-61), which includes first and second seal portions having substantially the same height. Lagerwall also teaches that the advantages of his invention are achieved by the spacer geometry (length and width) without any reference to a height difference (col. 10, lines 55-67). Lagerwall teaches that first and second seal portions are made by the same technique (col. 10, lines 30-32); Lagerwall also claims first and second seal portions etched from the same substrate in claim 19 (col. 12, lines 59-61) which would result in spacers of substantially the same height. Furthermore, Lagerwall's reference to an optional height difference cites a difference of only 10 to 20 % (col. 11, lines 12-17); seal portions with a height difference of only 10% are considered substantially equal in height. Lastly, seal portions and spacer portions of substantially the same height within and without the display area are most common in the art of liquid crystal displays because the substrates are most commonly substantially flat with a uniform spacing (or gap) overall.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy L Rude whose telephone number is (703) 305-0418. The examiner can normally be reached on Monday through Thursday.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H Kim can be reached on (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7724 for regular communications and (703) 308-7725 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4900.



Timothy L Rude
Examiner
Art Unit 2871

TLR
December 16, 2002


ROBERT H. KIM
SUPERVISOR OF EXAMINERS
TECHNICAL SERVICES DIVISION